



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
April 14, 1994, 9:00 A.M.
EXECUTIVE CONFERENCE ROOM**

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| Present: | R. A. Welke G. D. Taylor J. D. O'Doherty | G. D. Dobie C. Roberts | C. J. Arnold J. K. Erickson - FHWA |
| Guests: | M. R. Melchiori S. P. Mortel D. T. Vandenberg | C. T. Maki W. C. Turner R. Kuzma | D. Smiley J. Kanillopoulos M. VanPortFleet |

Minutes of March 3, 1994, meeting were approved as written.

OLD BUSINESS

1. Interstate Funds for I-275 CRC Reconstruction - M. Melchiori/Task Force

M. Melchiori presented the task force report outlining the proposed strategy for the treatment of the I-275 corridor. The proposed strategy included rehabilitation and reconstruction options, short- and long-term treatments, construction, scheduling, phasing and costs for programming consideration. The EOC accepts the report for follow-up with the Highway Steering Committee.

ACTION: The following information will be provided to R. Welke for further discussion with Bureau Planning and consideration for action by the Highway Steering Committee:

1. Maintenance will provide maintenance costs.
2. Design will provide information on life-cycle costing, pavement selection and designation of a project manager for the I-275 job.

2. Role and Responsibilities of the Bituminous Advisory Committee/DRAFT - R. A. Welke

R. Welke led the discussion of the proposed draft with comments centering on the concern regarding material quality.

ACTION: R. Welke will follow-up and prepare a final document incorporating the comments received during the discussion.

3. Review of Polymer Modification of Bituminous Mixture - E. Winkler

M&T will conduct a field site review of selected projects (I-94 Battle Creek, I-96 Novi, M-39 Southfield Freeway) that have used latex in bituminous overlays to determine extent of rutting. This item was tabled for the May 12, 1994, EOC meeting.

NEW BUSINESS

1. **Feedback Concerning Preserve Projects/Preventative Maintenance Projects - D. T. Vandenberg**

D. Vandenberg presented his views regarding the need of a process to provide feedback on construction projects and rehabilitation projects that have been completed. To facilitate this requirement, he suggests the department develop a procedure to survey concrete and bituminous projects as part of quality assurance. The discussion by EOC members conveyed these requirements are being fully addressed as part of the development of the Pavement Management System (PMS), presently under contract with Cambridge Technology Partners.

ACTION: None required.

2. **Proposed SP&R Project, "Investigation of Calcium Hydroxide Depletion as a Cause of Concrete Pavement Deterioration" - D. L. Smiley**

Dave Smiley presented the purpose of the study with background information based on field observations pertaining to pavement distress. One recognized characteristic of deteriorated concrete is the presence of secondary calcium carbonate deposits resulting from the mineralization of soluble constituents leached from the concrete matrix. Such deposits are common in cracks on the underside of the bridge decks and on abutments. They have also been found to form in pavement drainage systems built with crushed recycled concrete as drainage coarse aggregate.

The objective of the proposed investigation is to determine by chemical and physical tests if evidence shows that calcium hydroxide depletion is a significant contributor to the deterioration of concrete at pavement cracks. If calcium hydroxide depletion is shown to be a significant contributor to pavement deterioration, an expanded investigation of the phenomenon would be recommended. Objectives of expanded investigation would include the following.

1. To compare the extent of calcium hydroxide depletion in pavements with high durability versus low durability coarse aggregate.
2. To compare the extent of calcium hydroxide depletion in relatively new pavements (less than 10 years old) versus older pavements (greater than 10 years old).
3. To compare the extent of calcium hydroxide depletion in pavements with various designs, and containing various coarse aggregate types, including gravel, quarried limestone, blast furnace slag, and recycled portland cement concrete.

The proposed study was approved by the EOC as written with consideration given to incorporating the measurements of porosity and strength of concrete.

ACTION: M&T will coordinate the research as required.

3. **Plastic, Corrugated Metal and Concrete Pipes - R. Welke**

R. Welke presented information regarding activities occurring in AASHTO and other states addressing the use of plastic pipe as a result of experiencing failures in high-fill areas. With all of the activities on-going, it was decided a detailed review of our design procedures be undertaken regarding the use and replacement of concrete, corrugated metal and plastic pipes.

ACTION: Material and Technology (M&T), in conjunction with Design and Maintenance, is to coordinate and conduct the field inspection of existing plastic culverts and sewers, as well as corrugated metal and concrete pipes of similar sizes. The inspection will consist of mandrel testing and video taping with our mobile camera of all pipes. The Pipe Selection Task Force, which is chaired by Mark VanPortFleet, will compile the list of pipe locations for inspection. Every effort will be made to select pipe to be evaluated on a random basis.

M&T will develop a strategy and action plan to address all issues based on the detailed list of pipe inspection sites. All inspections, including a summary report, must be completed by November 1, 1994. This item will be placed on the May agenda for follow-up.

4. **Request for Participation from City of Lansing's Repair of Twin 90-Inch CMP's Under I-496 at US-127 Interchange - M. VanPortFleet**

The City of Lansing has requested that M•DOT participate in the repair of the existing twin 90-inch cmp pipes which cross US-127 just north of I-496. The total project cost is estimated at \$812,000.00. The requested participation of M•DOT is \$227,000.00. The pipes, to the best of our knowledge, are owned by the city, and the department has very little contributing runoff to the sewers. Department policy for participation is based on proportional share of flow. This request does not follow department policy.

M. VanPortFleet's recommendation is that the department should participate in the city's project for the requested \$227,000.00. The city has presented undisputed evidence that the replacement pipe was installed incorrectly during our construction project. The city also provided evidence that additional fill was placed above pipe not replaced with the construction project. We cannot verify by calculation that deformation of the pipe would not occur with the additional fill since the gage of the existing pipe is unknown. However, since the department did replace portions of the pipe in the fill areas of our construction project, it can be assumed that the department believed that additional fill would have an adverse affect on the existing pipe. A search was done to find an agreement between the City of Lansing and the department including these pipes. Since an agreement was not found, it is believed that all costs for the replacement were born by the department. Also, the city provided several options for determining

the department's share of costs. The city proposed participation on the least costly of the estimated participation.

ACTION: The EOC approved the department's participation as recommended in the city's project and request.

Calvin Roberts, Secretary
Engineering Operations Committee

cc EOC Members
 District Engineers

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| G. H. Grove | G. J. McCarthy | L. K. Heinig | J. Murner |
| E. D. Winkler | D. L. Coleman | W. C. Turner | D. L. Smiley |
| L. W. Martin | H. J. Nyquist | R. W. Muller | R. E. Nordlund |
| L. E. DeFrain | G. L. Mitchell | J. E. Norton | C. W. Whiteside |
| I. B. Patel | C. G. Cantrell | G. H. Gallup | A. G. Ostensen |
| G. J. Bukoski | R. D. Till | J. Becsey | |